

Boston Office: 01205 317540

✉ **Morgan House, Gilbert Drive,
Boston, Lincolnshire, PE21 7TQ**

Louth Office: 01507 601214

✉ **Meridian House, 41 Eastgate,
Louth, Lincolnshire, LN11 9NH**

STRUCTURAL APPRAISAL REPORT

**Existing Agricultural Building at;-
Waterloo Farm,
Monument Road,
Woodhall Spa,
Lincolnshire**



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Property:-	Existing Agricultural Building at;- Waterloo Farm, Monument Road, Woodhall Spa, Lincolnshire	Instructed;- May 2015
Client:-	Woodland Estate Farming Ltd 15 Newland, Lincoln, Lincolnshire LN1 1XG	Survey & Report by;- J. Ellington BSc, CEng MStructE J. Hicks BEng(Hons) MSc
Reference:-	JC/15/04/2407	Issued:- Jun 2015

Directors

J L Hicks BEng(Hons) MSc.

J C Ellington BSc, CEng MStructE FRSA MInstD

J C Consultancy is a trading style of J C Consultancy Limited

Registered in England 05973101

Trading Address Morgan House Gilbert Drive Boston Lincolnshire PE21 7TQ

Registered Office 75 High Street Boston Lincolnshire, PE21 8SX

VAT Reg. No. 895 1511 07

STRUCTURAL APPRAISAL REPORT,

Existing Agricultural Building at:-

Waterloo Farm,
Monument Road,
Woodhall Spa,
Lincolnshire

Our Ref;- JC/15/04/2407

SYNOPSIS

The report provides commentary of observations made during a structural appraisal survey, and identifies the defects witnessed within the fabric of the building.

The report concludes that the building has survived well considering its age and previous use and is ideal for sensitive restoration and conversion into a habitable dwelling.

The report recommends and describes various low key strengthening and remedial details to the roof, walls and floors that should be conducted as part of any conversion process.

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1.0 BRIEF

1.1 JC Consultancy Limited was requested by Woodland Estates Ltd, to assess and comment on the structural condition of an existing Agricultural building located at Waterloo Farm, Monument Road, Woodhall Spa, Lincolnshire.

2.0 INTRODUCTION & SCOPE

2.1 The existing Agricultural building is located within the grounds of Waterloo Farm off Monument Road, in a rural location adjacent to the B1191 Horncastle Road, Woodhall Spa.

2.2 The client owns the property and has instructed a structural appraisal report to be carried out in order to assess possible options for future development. This instruction was provided by the client's architect, Neil Dowlman Architecture.

2.3 This report should be read in-conjunction with documentation prepared and issued by the client's architect.

2.4 This report is solely for the purposes of the client and no other third parties.

2.5 JC Consultancy Limited visited the property on 15th May 2015 in order to carry out a structural appraisal survey.

2.6 Weather conditions at the time of the survey were cold and dry.

2.7 This report is limited to elements of the structural fabric of the property, i.e roof, walls and floors, and comments only upon their structural condition and performance.

2.8 The report does not contain observations, comments or recommendations to any non structural items including, but not limited to drainage, electrical, heating and plumbing services, timber work and decorative plasters.

2.9 Decay associated to damp, fungal attack, insect infestation or contamination is outside the scope of our appointment or report. Any reference to decay associated to damp, fungal attack, insect infestation or contamination to either structural or non-structural items are observations only. As such we recommend that further advice is sought from specialists in the fields of damp, fungal attack, insect infestation or contamination in order to guarantee peace of mind from these potential defects.

- 2.10 The inspection was of a visual nature only. There has been no opening up works involved in this investigation. Wall finishes or floor finishes, including carpets where applicable have not been removed or lifted during the inspection.
- 2.11 Any part of the structure that was hidden, covered or otherwise inaccessible, either by permanent finishes such as, but not limited to wallpaper, decorative plasters, suspended ceilings, or carpets, or by items of furniture, either fitted or freestanding, have not been inspected or commented upon. We therefore cannot guarantee that any such parts are free from defect. It should be noted that a percentage of the outbuilding is currently being used for storage, and as such some of the internal fabric was hidden, covered or otherwise inaccessible.
- 2.12 The performance of the existing foundations, ground strata and general ground conditions may be referred to within this report; however the existing foundations and ground conditions have not been inspected during our visual survey. Therefore comments made will be based on assumptions and analysis sought from indicative desktop sources including but not limited to the 'British Geological Society'. These sources generally provide sound interpretation, however local anomalies can occur, and as such we cannot guarantee their accuracy.
- 2.13 The observations and defects noted within this report should not be read as a comprehensive inventory of each and every single item witnessed during our survey. Instead the records should be taken as an indication of the condition of the property in general, and should demonstrate the likely defects that may be present elsewhere in areas of the fabric that have not been surveyed or recorded.

3.0 GENERAL DESCRIPTION

- 3.1 The property consists of a single storey, rectangular shaped stable block type structure, located on a predominantly level site. The building is located within the grounds of Waterloo Farm, Monument Road, Woodhall Spa, Lincolnshire.
- 3.2 The construction date of the building is unknown, but it is likely to have been constructed during the late 1800's to early 1900's.
- 3.3 The construction of the existing property consists of;-

Duo-pitched Roof

A clay pan tiled roof covering over a raised collar tied cut roof consisting of timber rafters, collars, purlins and ties.

External Walls

Predominantly 215mm wide, traditional solid wall construction consisting of clay masonry units laid in a lime based mortar mainly in an English Garden Wall style bond.

Internal walls

The internal cross walls are constructed of 215mm wide traditional solid walls consisting of clay masonry units laid in a lime based mortar.

Ground Floor

The ground floor consisted of a part concrete ground bearing slab, and part solid earth.

Rear Pen

To the rear of the main stable block there is an open fronted, duo-pitched, agricultural pen type structure. This has a corrugated roof structure over King Post Trusses, with part clad corrugated and timber walls. It is assumed that this will be replaced as part of any scheme for the buildings conversion.

- 3.4 Published Geological records show the building to be within an area where the soil sequence consists of a solid formation of Ampthill Clay Formation (Mudstone) overlain by River Terrace deposits (Sands and Gravels).
- 3.5 There are no mature trees in close proximity to the walls of the existing building.

4.0 OBSERVATIONS AND DEFECTS LOG

(Read in conjunction with Section 2.13 of this report)

4.1 Roof

- A tile roof covering is present. Small localised areas of missing / slipped tiles were noted.
- The ridge is slightly sagging along its length, between principal trusses and loadbearing walls.
- Slight roof dishing is apparent to both roof slopes.
- Rainwater goods are present.
- When viewed internally, the majority of the purlins, rafters and ties are present, but they are deflecting between their supports.
- A small degree of roof spread has occurred at the eaves level.
- Whilst a felt covering was present, water ingress and staining was noted to a number of timbers.

4.2 Walls

- The masonry elevation walls are generally free from major structural defects. When viewed along their length, the walls appear reasonably plumb.
- Minor displacement of masonry was noted over the door opening.
- Minor fractures and movement was noted to the cross walls and the front elevation wall.
- Lower levels of masonry adjacent ground level were weathered in parts, presumably from continued wetting and splash back from surface water.
- Timber lintels and posts over the open fronted area of the barn have distorted and deflected.

4.3 Ground Floors

- The floors have been used for the storage of goods and general outbuilding use. As such the condition of the floors reflects this. There were no major fractures to the concrete slab in the stable areas.

4.4 Foundations

- It is likely that the foundations consisted of a shallow corbelled system that is typical of a building of this age and use. The superstructure is not displaying any signs that would suggest the foundation system is under excessive stress. The foundations appear to be performing satisfactorily.

5.0 CONCLUSIONS AND RECOMMENDATIONS.

- 5.1 The stable block has survived well considering its age and previous use and is ideal for sensitive restoration and conversion into a habitable dwelling.
- 5.2 The buildings basic, rectangular shape, together with the presence of cross walls, results in it being a robust structure which can be seen to have only lost a small amount of original fabric during its lifetime.
- 5.3 In structural terms many of the defects which have been highlighted within the Observations and Defects Log have little or no significance to the overall robustness of the building. The majority of loss of the original structure is due to the materials being subjected to the elements. Ensuring the outbuildings are weather-tight should be addressed even if a full conversion or restoration is not going to take place. Failure to do so will accelerate the decay and deterioration of the remaining fabric.
- 5.4 The roof structure of the building is in a reasonable condition but is unlikely to be suitable to be utilised in any conversion .A replacement roof structure would greatly enhance the overall structural robustness of the building. Incorporating flat ceilings, which essentially tie the top of the walls together, would prevent further roof spread. Alternatively if a vaulted/ sloping ceiling is required we recommend that the introduction of a ridge beam system, or a feature trussed arrangement utilising King/Queen Post trusses would also prevent additional stresses from being placed upon the walls.

The timber wall plates should be replaced and should be strapped to the walls in accordance with current building regulations. The existing roof tile finish could be reused and reinstated. A number of replacement tiles will be required to replace missing areas.

- 5.5 The walls of the outbuilding are predominantly sound and require little attention. Ideally any proposed layout by the architect should retain the cross walls as these are essentially tying the front and rear elevations together. The introduction of a new inner leaf of blockwork would greatly enhance the structural robustness of the building. If installed, we recommend the blockwork is used to support the new roof structure, in which case the existing masonry walls would essentially become a non-loadbearing cladding system.

The cause of the localised area of cracking and movement is likely to have been contributed by a degree of minor roof spread, together with continued exposure to the elements from the missing roof coverings.. The performance of masonry can be improved by low key stitching using the 'Helifix' masonry repair system, which involves installing remedial 'Heli-bar' reinforcing rods into the bed joint of the masonry at regular vertical centres. More information can be seen at www.helifix.co.uk.

Any areas of hard cement re-pointing previously carried out on the elevations should be carefully removed and replaced with a sympathetic soft lime based mortar. Other small areas of weathered masonry joints should be repointed in a similar fashion. There is not the requirement for all elevations to be repointed, and as such only the localised required areas should be addressed.

Any timber arch backing timbers should be replaced. The defective timber beam / post arrangement to the front elevation should be replaced or incorporated into a window / door type arrangement. Any timber wall plates that are present within the walls should be removed and replaced with remedial brickwork infill.

Suitable damp-proofing systems should be installed to the walls in accordance with good building practices.

- 5.6 It is assumed that the ground floor will be replaced with a ground bearing, concrete ground floor slab as part of any development. We recommend that the slab should be engineered to ensure that it is suitable to accommodate loadings from the proposed use, including the earlier recommended blockwork inner leaf and partitions. Once installed, the slab will act as a raft type slab system, which will minimise any additional loadings placed upon the existing foundations. This should assist in improving the overall structural performance of the building.
- 5.7 Existing foundations appear to be performing satisfactory. If the installation of a engineered slab is introduced as discussed in 5.6, there should not be the requirement for any strengthening to existing foundations as part of the proposed works.
- 5.8 Poor performing rainwater discharge gutters and downpipes will result in the continued wetting of masonry and localised areas of timbers. Rainwater goods should be repaired / installed throughout all areas of the building to allow reliable discharge of rain water. The installation of a gravelled apron / French drain type arrangement around the external perimeter walls will assist in relieving the walls and foundations from decay.

JC Consultancy Limited

June 2015

6.0 PHOTOGRAPHS.



Photograph # 1



Photograph # 2



Photograph # 3



Photograph # 4



Photograph # 5



Photograph # 6



Photograph # 7



Photograph # 8



Photograph # 9



Photograph # 10



Photograph # 11



Photograph # 12



Photograph # 13



Photograph # 14



Photograph # 15



Photograph # 16



Photograph # 17



Photograph # 18



Photograph # 19



Photograph # 20



Photograph # 21



Photograph # 22

END OF REPORT